Methods: Retrospective analysis of data collected in years 1978-2000 concerning 651 liver biopsies of patients with chronic viral hepatitis: 350 with hepatitis B, 280 with chronic hepatitis C, 21 with co-infection HBV/HCV, was performed. Presence of fibrosis, features of cirrhosis and iron deposits in liver samples were evaluated. Chi-square test was used in statistical analysis.

Results: Iron deposits were present in 69 samples (9,9%): 32 (9,1%) patients infected with HBV; 29 (10,3%) infected with HCV; and 8 (38,1%) co-infected with HBV/HCV. Presence of fibrosis was described in 27 samples of HBV infection (84,4%) compared to lower rate in HCV infection – 20 (68,9%). Fibrosis rate was the highest in HBV/HCV co-infection – 7 (87,5%). In 18 samples (22,2%) liver cirrhosis or advanced fibrosis was described: 9 cases (28,1%) of HBV infection; 6 (20,7%) of HCV infection; 3 (37,5%) of HBV/HCV co-infection. Rates of fibrosis were higher in groups with iron deposits compared to groups without iron storage: for HBV infection 84,4% vs 61,8% - statistically significant difference (p=0,01); for HCV infection 68,9% vs 58,3% - non-significant (p=0,33); for HBV/HCV co-infection 87,5% vs 45,5% - statistically significant (p=0,022), although the group was small. 6 patients in each HBV and HCV group had additional risk factors for iron storage: history of alcohol abuse or multiple blood transfusions, none of them had advanced fibrosis. 6 patients in co-infection group had history of hepatotoxic therapy and blood transfusions. No features of haemochromatosis were found.

Conclusion: Preliminary observations concerning impact of iron storage on liver fibrosis in chronic HBV infection indicate worsening of clinical course of hepatitis and higher risk of cirrhosis. Iron deposits assessment in histological examination may have prognostic significance. Role of iron needs further, large prospective studies.

High rate of iron storage and advanced fibrosis found in co-infection group may be explained by additional risk factors.

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Time: 12:45-14:15
Room: Poster & Exhibition Area

What is the knowledge, attitude and practice (KAP) level of the residents who are living in Rural Area of Central India?

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Background: Dengue Fever (DF) is an emergent disease in India. It is endemic in some parts of country and contributes annual outbreaks of dengue. The present KAP study was done with the aim of assessing knowledge regarding Dengue fever among rural population attending a hospital out patient department. Another aim was to assess, whether simple preventive measures to check and destroy the breeding sites of mosquito like checking of coolers, discarded tires, flower pots etc. are being practiced in the community.

Methods: Setting:The Jawaharlal Nehru Medical College, DMIMS, Sawangi Meghe, Wardha is the rural medical college located in Maharashtra.Study Design:The study design was a Hospital of Central India.Study population:The population in this study were residents of Wardha Districts, Maharashtra State, India, who were living there for at least one year and are of age between 18 - 60 yrs. A sample size of 460 adults (aged 18 years and above) were interviewed using a pre-tested questionnaire regarding their knowledge, attitude and practices about dengue fever. A composite scoring system, based on the answers given in the questionnaire, was used to establish the level of awareness in the population. The division of the higher and lower socio-economic groups was based on modified Kuppuswamy scale; these variables were determined as a part of our survey.

Results: Data from 400 respondents (275males, 125 females) was used for primary analysis. About 25% of the sample had adequate knowledge about dengue fever and its vector. Knowledge had significant associations with education (p= 0.03) and socioeconomic status (p=0.01). The high socioeconomic group showed better preventive practices.

Conclusion: The DF remains a public health problem in Rural Area of Central India and the people need more understanding of the disease. The Knowledge of dengue fever is inadequate in the low socioeconomic class.

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Considerations for changing PRNT Dengue 4 reference viruses: sub- optimal immunity to documented infections

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Background: The plaque reduction neutralization test (PRNT) is considered to be the "gold standard" to characterize and quantify circulating levels of anti-dengue virus (DENV) neutralizing antibody. The PRNT is used to define the immunogenicity of dengue vaccine candidates, support dengue seroepidemiologic and pathogenesis studies. Despite numerous efforts to standardize the assay and normalize data to better compare data between studies and natural and vaccine infections, there are several sets of reference viruses around the world.

Methods: The Armed Forces Institute of Medical Sciences in Bangkok utilizes DENV-1 (16007), DENV-2 (16681), DENV-3 (16562) and DENV-4 (1036) reference strains. In 2006 the dominate serotype in circulation in Thailand was DENV-4. In cohort studies we observed poor or absent PRNT titers using the 1036 DENV 4, genotype 3 strain (originally isolated in 1976 in Indonesia) to documented DENV-4 infections. New candidate DENV-4 reference viruses were selected from isolates collected in the last 10 years. These viruses were tested using a bank of sera from documented

DENV-4 infections including homologous sera from the individuals from which the strains were isolated. A candidate reference strain was selected based on PRNT titers achieved, low cross reactivity, and the ability of the virus to produce large well-formed plaques. More than 300 samples were tested with the old and new reference virus.

Results: Geometric mean titers were increased 4.2 fold. Using the new reference virus enabled identification of additional inapparent infections in cohort studies and has enhanced our ability characterize the DENV-4 immune response.

Conclusion: This study illustrates the need to continuously monitor the performance of viral strains in reference assays. Furthermore, this data suggests that dengue viral evolution may have a profound effect on tests that utilize reference strains.

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Dengue serotypes and disease severity in Singapore

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Background: All four dengue serotypes circulate in Singapore. While there are reports on impact of dengue serotypes on disease severity, studies on adults are limited. We conducted a prospective study to assess the effect of infecting dengue serotypes on disease severity.

Methods: Febrile patients 18 years or older without alternate diagnosis to dengue were recruited from April 2005 to September 2011 from primary care clinics and Communicable Disease Center, Singapore. Clinical and laboratory data were collected. Dengue was confirmed by polymerase chain reaction (PCR) or non-structural protein1 (NS1) antigen detection and serotyping was performed where possible. Dengue haemorrhagic fever (DHF) and severe dengue (SD) as defined by the World Health Organization 1997 and 2009 criteria were primary outcomes.

Results: Dengue was confirmed in 513 (positive PCR in 438 and NS1 75) among 3,138 enrolled patients. Of these, 345 were serotyped comprising 25.2% DENV1, 49.6% DENV2, 21.2% DENV3 and 4.1% DENV4. Co-infection by different serotypes did not occur. Of the 345 patients, DHF occurred in 16.2% and SD 7.0%. DENV4 had highest proportion of both DHF (followed by DENV2, DENV1 and DENV3) and SD (followed by DENV1, DENV3 and DENV2). Presence of anorexia, nausea, red eyes, platelet count, lymphocyte proportion, pulse rate, systolic blood pressure and hospitalization proportion were statistically different between infecting serotypes ($p<0.05$). After adjusting for hospitalization status, DENV2 was associated with DHF (adjusted odds ratio [aOR]=2.2, 95% confidence interval [CI] 1.2 to 4.2). SD was found to be associated with DENV1 (aOR=2.4, 95%CI 1.001 to 5.9), and DENV4 (aOR=8.0, 95%CI 1.7 to 37.0). However, DENV2 (aOR=0.3, 95%CI 0.1-0.9) cases were less likely to progress to SD.

Conclusion: Infecting dengue serotype may play an important role in disease severity among adult dengue patients in Singapore. Significant association was found between DENV2 and DHF, while DENV1 and DENV4 were associated with SD.

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Predictive tools of severe dengue for well-resourced and resource-limited settings

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Background: Dengue causes 50 million infections per year, posing a large disease and economic burden in tropical and subtropical regions. Only a proportion of dengue cases require hospitalization and predictive tools to triage dengue patients likely to develop complications may optimize usage of limited healthcare resources. There is currently no predictive tool for severe dengue (SD) proposed by World Health Organization (WHO) 2009 dengue guideline.

Methods: We undertook a retrospective study of adult dengue patients in Tan Tock Seng Hospital, Singapore, from 2006 to 2008. Polymerase chain reaction confirmed patients were selected; their demographic, clinical and laboratory variables at presentation were used to predict the development of SD after hospitalization using generalized linear models (GLMs) and classification trees. GLMs were translated into easy-to-implement scoring tables.

Results: Predictive tools compatible with well-resourced and resource-limited settings – not requiring laboratory information – performed acceptably with sensitivities of 90% for specificities of 46% and 31% respectively. Higher risk of SD development was associated with patients presenting abdominal distension, female sex, fever on admission, and high levels of serum aspartate transaminase. Lower risk of SD development was associated with higher age, leucopenia, higher levels of hematocrit and higher levels of serum alanine transaminase. The early warning signs proposed by WHO 2009 were found to be poor predictors of SD.

Conclusion: The application of the predictive tools in the clinical setting may reduce unnecessary admissions by 36% by better allocating scarce public health resources to patients developing SD. We estimate that 2010 US $1.8 million could be averted annually in Singapore if the new screening tools were implemented.

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